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REMARKS

Claims 21-28 are pending and presented for examination in the subject application, with claim 21 being the sole pending independent claim.

Applicants have hereinabove amended claim 21 to place the claim in better form for examination. Applicants maintain that no new matter and no new issues are presented by this amendment. Accordingly, Applicants respectfully request that this Amendment be entered.

Rejection Under 35 U.S.C. §103(a)

On page 2 of the January 27, 2003 Office Action, claims 21-24 and 28 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,358,822 issued to Hou (hereinafter "Hou '822"), and claims 25-27 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Hou '822 in view of U.S. Patent No. 3,808,026 to Sato et al. (hereinafter "Sato '026").

The Examiner stated that these rejections were set forth in the office action mailed December 6, 2000. The Examiner also stated that they were withdrawn in the last office action because of limitations that required both inorganic particles and a coloring agent subjected to dispersion and mixing. The Examiner further stated that the requirement of the coloring agent was removed from the claim limitations in the recent response. The Examiner stated that Hou '822 is reapplied as relevant prior art alone for certain claims and in combination with Sato for other claims.

The Examiner stated that Hou '822 discloses a process of making a liquid toner in the process of Example 2. The Examiner also

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stated that in the process a thermoplastic polymer and a pigment are placed in a solvent that is a good solvent for the polymer at high temperatures and a poor solvent at lower temperatures. The Examiner further stated that the polymer and pigment are sonified and heated to a temperature where the polymer is dissolved and then cooled so the polymer precipitates with the pigment. The Examiner stated that the precipitated polymer particles are removed from the solvent and then redispersed in ISOPAR and mixed with cupric naphthenate along with a steric stabilizer. The Examiner also stated that the reference discloses cupric naphthenate and zirconium octoate as alternative charge control agents.

The Examiner stated that the art as discussed above and as discussed throughout prosecution is pertinent to the claims under consideration. The Examiner also stated that the reference discloses heating of the resin particles in the solvent and suggests that the resin and solvent have the claimed characteristics. The Examiner further stated that Hou '822 discloses stirring while heating together with inorganic particles, in this case carbon black. The Examiner stated that each of the resin and solvent also inherently has a solubility parameter and suggests the claimed solubility parameter.

The Examiner stated that the art suggests the claimed process for the reasons of record. The Examiner also stated that Applicants were advised in the last office action that the combination of inorganic particles and coloring agent previously claimed was the basis for removal of the rejections. The Examiner further stated that because the combination is no longer claimed, the rejection is properly reapplied. The Examiner stated that no specific remarks have been presented to show why the previously applied

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art is not relevant to the instant claims.

Applicants maintain that Hou '822 and Sato '026 do not render obvious the invention claimed in amended claim 21. The claimed invention is patentable over Hou '822 and Sato '026 for at least the following reasons.

Amended claim 21 includes the following features: (i) a thermoplastic resin is dissolved by heating it while stirring in a specific solvent together with inorganic particles and a coloring agent, and the resultant mixture is then cooled to precipitate toner particles; and (ii) the specific solvent is a solvent capable of dissolving the thermoplastic resin when heated and substantially incapable of dissolving the resin at room temperature. The SP (solubility parameter) value of the solvent is adjusted in such a manner that the diameter of toner particles can be controlled on the basis of the difference between the SP values of the resin and solvent. The claimed invention embodies the recognition that the diameter of toner particles can be controlled based on the difference between the SP values of a resin and a specific solvent when a mixture of the solvent and the thermoplastic resin is cooled to allow precipitation of the toner particles.

The liquid toner is allowed to have characteristics similar to those of an electrotheological fluid, and the liquid toner composition using that liquid toner ensures high (or stable) image quality.

These advantages of the claimed invention are not disclosed or suggested in Hou '822.

Hou '822 does not disclose or suggest that a polymer is insoluble in a solvent at room temperature. Since the polymer is precipitated by decreasing the temperature to 0°C, it is conceivable that the polymer of Hou dissolves in a solvent at room temperature. It may be possible for those skilled in the art to select an appropriate combination of a resin and a solvent in which the resin does not dissolve in the solvent at room temperature and begins to dissolve at a higher temperature. However, selecting such an arbitrary combination does not necessarily lead to sharp toner particles, without the technical concepts of SP values described in the subject application.

Hou '822 does not disclose or suggest that the SP value difference between a resin and a solvent is a factor for determining the diameters of resin particles precipitated in the solvent. Hou '822 simply does not suggest that the difference between the SP value of the resin and that of the solvent is effective in controlling diameters of precipitated particles.

The diameters of precipitated resin particles can be controlled by using solvents of different SP values, i.e., without having to use different kinds of resin or varying the manufacturing conditions. The type of resin and solvent in use should be selected, of course, in a manner that the resin would not dissolve at room temperature and can dissolve at a higher temperature. This technique of controlling the diameters of resin particles is not disclosed or suggested by Hou '822.

Sato '026 relates to a method of developing an electrostatic latent image formed on an electrophotographic surface.

Sato '026, like Hou '822, does not teach or suggest adjusting the

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SP value of the solvent to control the particles diameter of toner particles on the basis of a difference between and SP value of the resin and the SP value of the solvent, as provided by the claimed invention.

Therefore, even a combination of Hou '822 and Sato '026 fails to teach or render obvious all features of the claimed invention.

Regarding claims 22-28, Applicants respectfully point out that claims 22-28 depend on and include all the limitations of claim 21. Thus, claims 22-28 are patentable at least for the reasons set forth above with respect to claim 21.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejections of claims 21-28 under 35 U.S.C. §103.

In view of the amendments to the claims and remarks hereinabove, Applicants maintain that claims 21-28 are now in condition for allowance. Accordingly, Applicants earnestly solicit the allowance of claims 21-28.

If a telephone interview would be of assistance in advancing prosecution of the subject application, Applicants' undersigned attorneys invite the Examiner to telephone them at the telephone number provided below.

If a petition for an extension of time is required to make this response timely, this paper should be considered to be such a petition, and the Commissioner is authorized to charge the requisite fees to our Deposit Account No. 03-3125.

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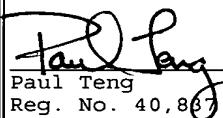
No fee is deemed necessary in connection with the filing of this Amendment. However, if any additional fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 03-3125.

Respectfully submitted,



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April 14, 2003  
Date



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21. (Five Times Amended) A method of manufacturing a liquid toner composition for electrophotography, comprising:

heating a thermoplastic resin within a solvent capable of dissolving said thermoplastic resin when heated and substantially incapable of dissolving said resin at room temperature, an SP (solubility parameter) value of said solvent being adjusted to control the particle diameter of toner particles on a basis of a difference between an SP value of the resin and the SP value of the solvent, while stirring the thermoplastic resin in said solvent together with inorganic particles and a coloring agent, to thereby dissolve said thermoplastic resin in said solvent; and

cooling the mixture to permit precipitation of the toner particles.